UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office

Address : COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

SERIAL NUMBER	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
08/159,122	11/30/93	AKAGIRI K	SONYC2195

BOCURE, T EXAMINER

26M1/0715

PHILIP M. SHAW, JR.
LIMBACH & LIMBACH
2001 FERRY BUILDING
SAN FRANCISCO, CA 94111

ART UNIT	PAPER NUMBER
2614	7

DATE MAILED: 07/15/94

This is a communication from the examiner in charge of your application.
COMMISSIONER OF PATENTS AND TRADEMARKS

☑ This application has been examined ☐ Responsive to communication filed on _____ ☐ This action is made final.

A shortened statutory period for response to this action is set to expire 3 month(s), 0 days from the date of this letter.
Failure to respond within the period for response will cause the application to become abandoned. 35 U.S.C. 133

Part I THE FOLLOWING ATTACHMENT(S) ARE PART OF THIS ACTION:

1. ☑ Notice of References Cited by Examiner, PTO-892.
2. ☑ Notice re Patent Drawing, PTO-948. Approved
3. ☑ Notice of Art Cited by Applicant, PTO-1449. 2 sheets
4. ☐ Notice of Informal Patent Application, Form PTO-152.
5. ☐ Information on How to Effect Drawing Changes, PTO-1474.
6. ☐ _____

Part II SUMMARY OF ACTION

1. ☑ Claims 1-58 are pending in the application.
   Of the above, claims _____ are withdrawn from consideration.
2. ☐ Claims _____ have been cancelled.
3. ☐ Claims _____ are allowed.
4. ☑ Claims 1-58 are rejected.
5. ☐ Claims _____ are objected to.
6. ☐ Claims _____ are subject to restriction or election requirement.
7. ☐ This application has been filed with informal drawings under 37 C.F.R. 1.85 which are acceptable for examination purposes.
8. ☐ Formal drawings are required in response to this Office action.
9. ☐ The corrected or substitute drawings have been received on _____. Under 37 C.F.R. 1.84 these drawings are ☐ acceptable. ☐ not acceptable (see explanation or Notice re Patent Drawing, PTO-948).
10. ☐ The proposed additional or substitute sheet(s) of drawings, filed on _____ has (have) been ☐ approved by the examiner. ☐ disapproved by the examiner (see explanation).
11. ☑ The proposed drawing correction, filed on 1/18/94, has been ☐ approved. ☐ disapproved (see explanation).
12. ☑ Acknowledgment is made of the claim for priority under U.S.C. 119. The certified copy has ☐ been received ☐ not been received ☑ been filed in parent application, serial no. 07/857,980; filed on 03/26/92
13. ☐ Since this application appears to be in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11; 453 O.G. 213.
14. ☐ Other

EXAMINER'S ACTION

PTOL-326 (Rev. 9-89)

Part III DETAILED ACTION

1. Applicant is reminded to disclose the related application (parent application) by its Serial No. and filing date.

2. Applicant should be aware that the parent application S.N 07/857,980, has been issued as a U.S patent number 5,285,476, therefore, a terminal disclaimer should be filed to those claims in the U.S patent number 5,285,476, which are the same as the once claimed in this application.

Claim Rejections - 35 USC § 112

3. Claims 1-58 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claimed output from the block length decision circuit in claim 1, lines 6-7, is not used by any of the elements. Are the "frequency range signals" recited in claim 1, lines 7 and 9, the same as the once in line 4? If so, the once in lines 7 and 9, should be written as "said frequency range signal" and "said each frequency range signal", respectively. The same is true with "each frequency range signal" recited in claims 2 , line 3 claim 27, line 2 and claim 26, lines 7 and 9. Claim 1 lacks a means for generating the

index value. There is no claimed limitation/limitations to define a relationship between the frequency range signal and that of the index in order the claimed block length decision circuit and the block floating processing means to generate the claimed outputs. The word, "an", in claim 2, line 5, should be deleted. Claim 26, lacks a means for generating the frequency range signal in time and the plural sub blocks. Note that as claimed, the frequency range signal in time are not the same as the "frequency range signal" recited in claim 1. The claimed "--sub blocks constituting the block" recited in claim 26, line 11, is not understood from the claim. "The sub block" recited in claim 27, line 5, lacks a clear antecedent basis. Note that there ~~is~~ are a plural sub blocks claimed in claim 26 in which claim 27 depends on. It confusing from the claims, claims 1,2 and 26-28, that the index generating means and block length decision means are responsive to the frequency range signal at one time and the frequency range signal at other times. Are the frequency range signal in time and the frequency range signal recited in claim 28, the same as the once in claim 26? If so, the once in claim 28 should be written as "said frequency range signal in time" and " said frequency range signal", respectively. The same is true with the "frequency range signal in time" and "frequency range signal in claim 29. There is no claimed output from the means for comparing recited in claim 28, line 8-9. What is outputted from the means for comparing in order the block defining means to be responsive to and

function accordingly? The same is true with the comparing means recited in claim 29. "The indices of the first sub block and the second sub block" recited in claim 29, lines 5-6, lacks a clear antecedent basis. Also claim 29, lacks a mean for generating the indices of the first and second sub blocks. The Claimed block defining means in claim 29, should be clearly recited as being responsive to the means for comparing. "The indices of the first half sub block and the second half sub block" recited in claim 30, lines 6-7, lacks a clear antecedent basis. Claim 30 lacks a means for generating the indices of the first half sub block and the second half sub block. The claimed "block defining means" recited in claim 30, lines 10-19, should be clearly recited as being responsive to the means for comparing. It is not clear from the in claim, in claim 3, whether the orthogonal transform means is responsive to the band division filter means or the block floating processing means. Are the "frequency range signal divided in time into blocks" in claim 3, lines 7-8, the same as the "frequency range signal in each of plural frequency ranges" recited in lines 4-5? If so, the once in lines 7-8, should be clearly recited as being the once in lines 4-5, otherwise, claim 3 lacks a means for generating the frequency range signal divided in time into blocks in order the block floating processing means to function as claimed. "The critical bands" recited in claim 3, lines 27-28, lacks a clear antecedent basis. What is the condition for setting a flag? Is the flag set in

response to the compared minimum audible level? If so the flag setting should be clearly recited as being set in response to minimum audible level. Shouldn't a "," be added before "wherein" in claim 3, line 28? Shouldn't the "wherein" in claim 3, line 31, be places by ---where---? Claim 31 lacks a means to identify the claimed critical band from the orthogonally transformed plural bands. The "each frequency range signal in time" recited in claim 6, lines 21 and 29, should be written as "said each frequency range signal in time", see claim 3, lines 7-8. Claim 6 lacks a means for generating the index value. There is no claimed limitation/limitations to define a relationship between the frequency range signal and that of the index in order the claimed block length decision circuit and the block floating processing means to generate the claimed outputs. The "each block floating processed block" recited in claim 32, line 8, should be written as "said each block floating processed block." The "digital input signal in time" recited in claim 35, lacks a clear antecedent basis. Is it the same digital signal recited in claim 32? "The step for calculating an index" recited in claim 36, line 4, lacks a clear antecedent basis. Is it the same as the step for generating recited in claim 32 and 35? The same is true with "the step for calculating" recited in claim 37. "The step of comparing the indices" recited in claim 35, line 5, should be written as "a step for comparing the indices." "The input signal in time" recited in claim 37, line 7 and claim 38,

line 2, lacks a clear antecedent basis. The "each frequency range signal" recited in claim 42, line 5, should be written as "said each frequency range signal." See claim 42, line 2. The last sentence staring "---wherein the step---" in claim 43, lines 13-15, is not understood, nor does make sense. "The step of orthogonally transforming" recited in claim 43, lines 2-3, should be written as "a step of orthogonally transforming." "the method provides a compressed signal" recited in claim 46, lines 1-2, should be written as "the method for compressing the digital input signal." "The spectral coefficients" recited in claim 46, lines 3-4, should be written as "the spectral coefficients in each of the bands." Otherwise as claimed, it reads as if the step of adaptively allocating in claim 46 ~~reads as if it~~ is responsive to the step for deriving rather than the step for dividing, see claim 43. "The steps of" recited in claim 48, line 2, should be written as "steps of." "the digital input signal in time" recited in claim 48, line 3, lacks a clear antecedent basis. "The spectral coefficients in the band" recited in claim 54, line 4, should be written as "the spectral coefficients in the bands." "The claimed limitation starting "--,and, for each----" in claim 54, lines 6-9, is not understood nor it is a complete sentence. The reception of the compressed signal structure with respect to band sub band and spectral coefficients in the band recited in the preamble of claim is not understood. The steps for setting, determining and using in

claims 54-58, are confusing with respect to the bands, band and sub band. "the digital input signal in time" recited in claim 11, line 2, lacks a clear antecedent basis.

Still applicant is reminded to claim properly the "each frequency signal in time and each frequency signal in time" in claims 1-7, 25-50 and "the digital input signal in time and digital signal" in claims 8-24. It is confusing throughout the claims that the same signal is claimed as "each frequency signal" at one time, and "each frequency signal in time" at other time. The same is true with the "digital signal in time" and the digital signal" recited in claims 22-24 and 32-42.

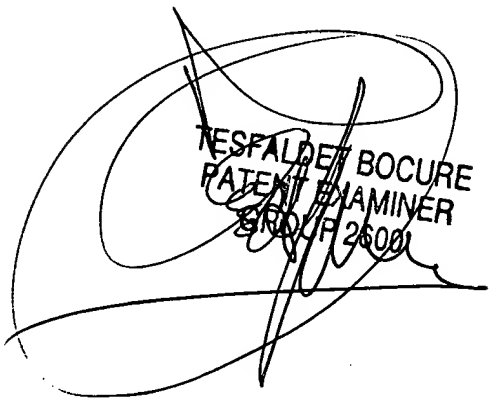
Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S patent numbers 4,455,649; 5,109,417 and 5,134,475 issued to Esteban et al, Fielder et al and Johnston et al, respectively, disclose a subband coding technique having an adaptive bit allocation.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to t.Bocure whose telephone number is (703) 305-4735.

T.Bocure
July 10, 1994



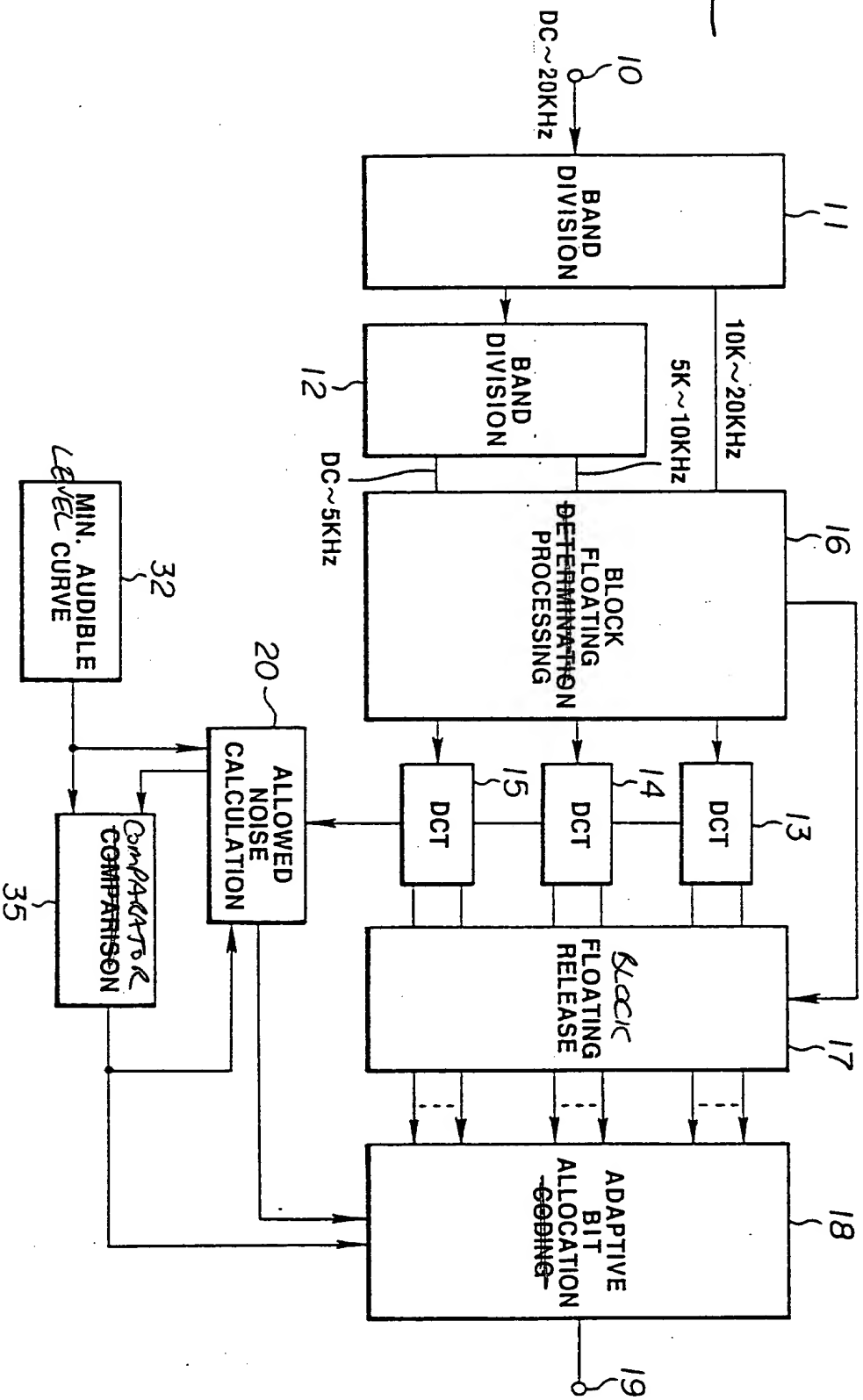


FIG. 1

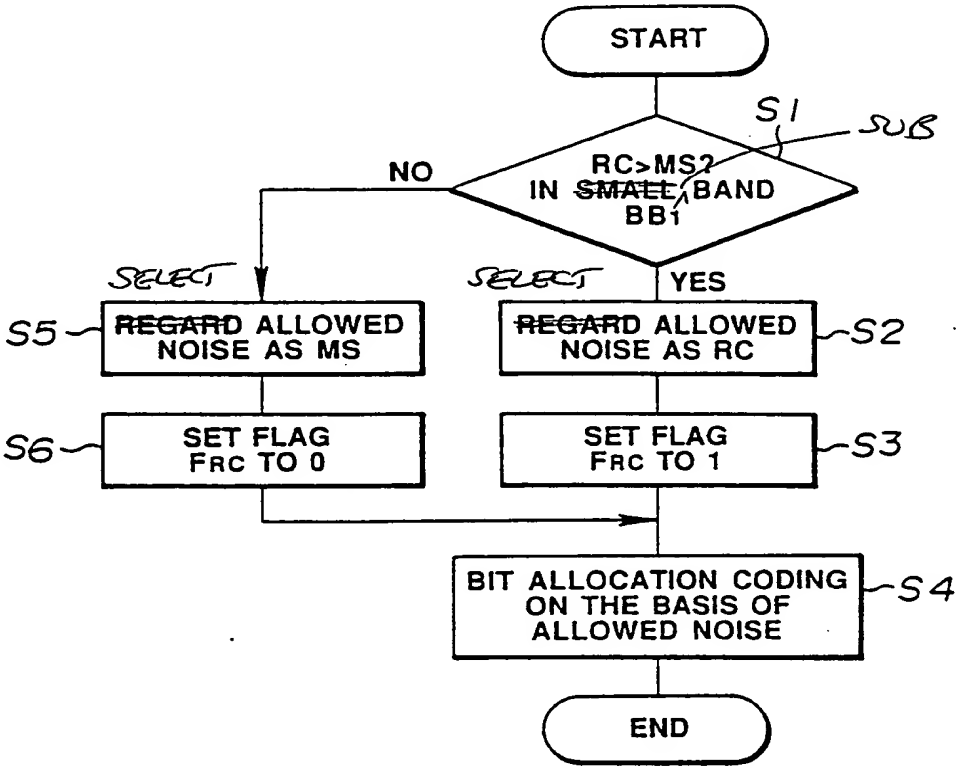

START
S1
SUB
RC>MS2
IN ~~SMALL~~ BAND
BB1
NO
YES
SELECT
SELECT
S5
~~REGARD~~ ALLOWED
NOISE AS MS
~~REGARD~~ ALLOWED
NOISE AS RC
S2
S6
SET FLAG
FRC TO 0
SET FLAG
FRC TO 1
S3
BIT ALLOCATION CODING
ON THE BASIS OF
ALLOWED NOISE
S4
END

FIG. 3

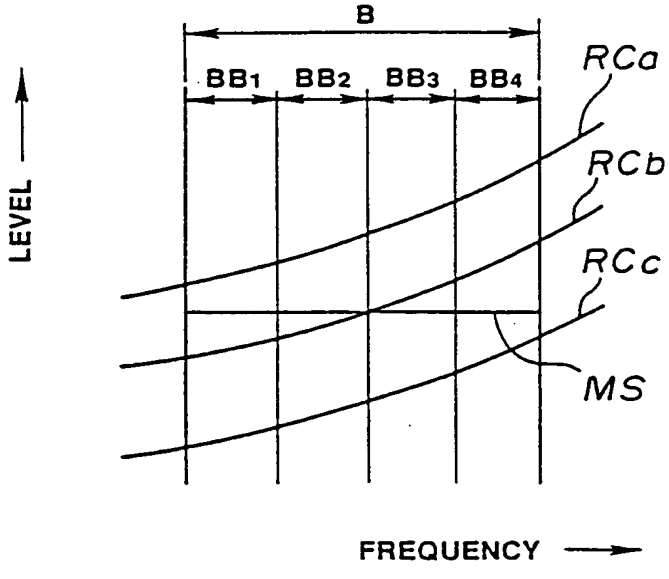

B
BB1
BB2
BB3
BB4
RCa
RCb
RCc
MS
LEVEL
FREQUENCY

FIG. 4

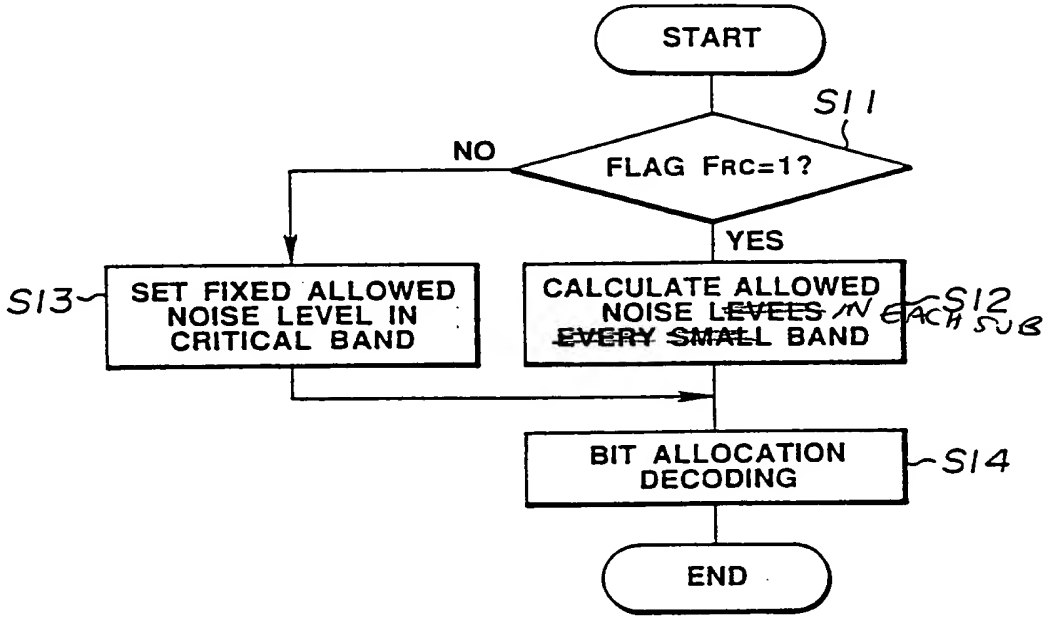

START
S11
FLAG FRC=1?
NO
YES
S13
SET FIXED ALLOWED NOISE LEVEL IN CRITICAL BAND
CALCULATE ALLOWED NOISE LEVELS IN EACH SUB EVERY SMALL BAND
S12
BIT ALLOCATION DECODING
S14
END

FIG.5

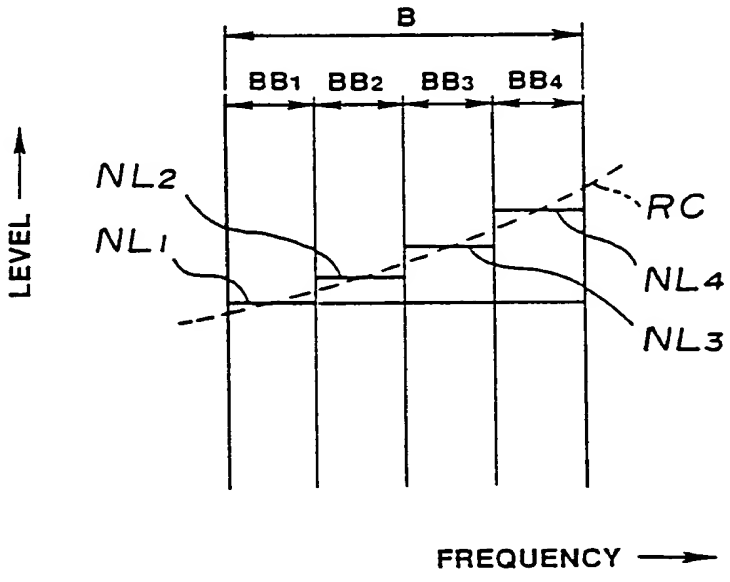

B
BB1
BB2
BB3
BB4
LEVEL
NL2
NL1
RC
NL4
NL3
FREQUENCY

FIG.6

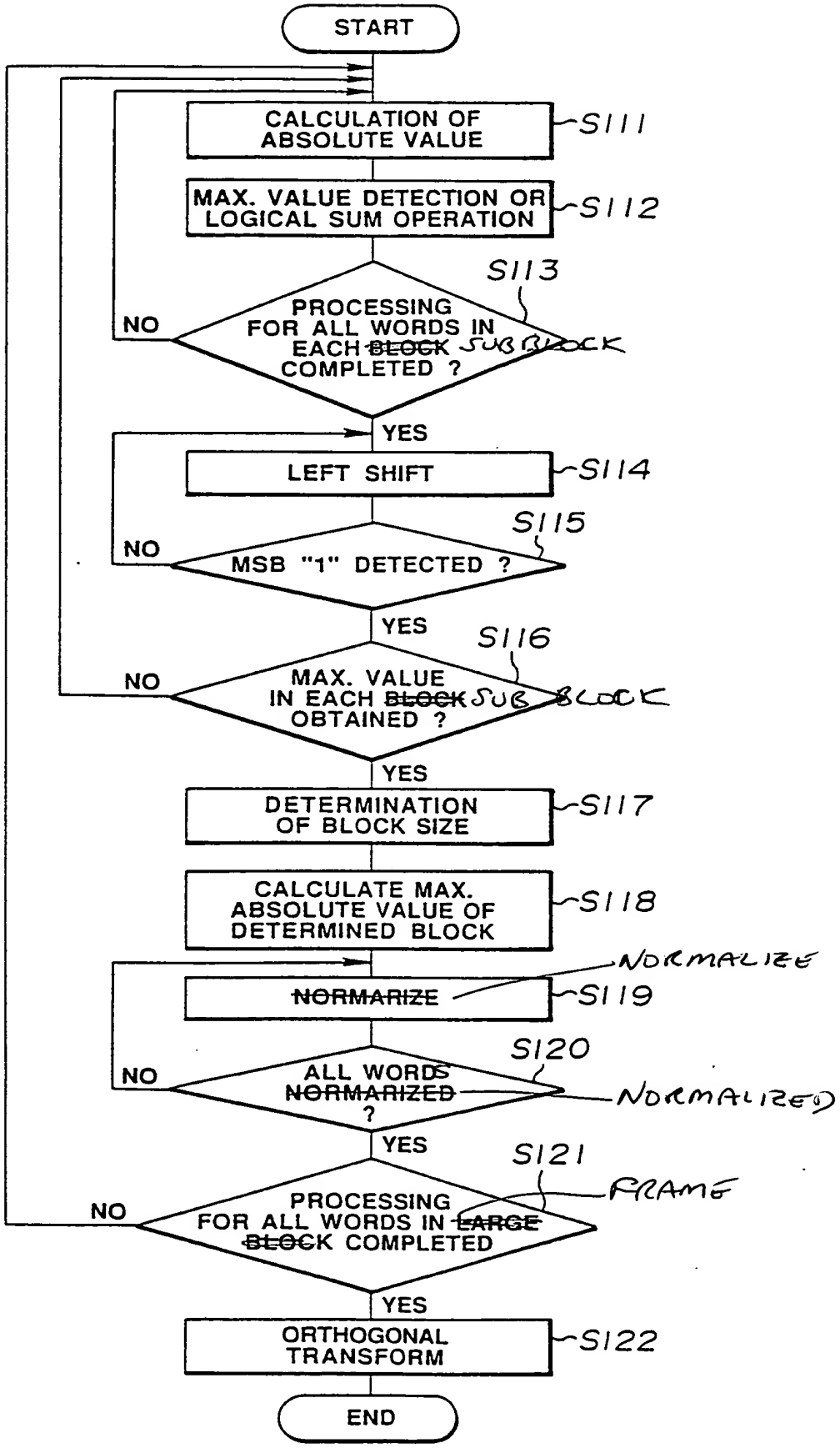

START
CALCULATION OF ABSOLUTE VALUE
S111
MAX. VALUE DETECTION OR LOGICAL SUM OPERATION
S112
S113
PROCESSING FOR ALL WORDS IN EACH ~~BLOCK~~ SUB BLOCK COMPLETED ?
NO
YES
LEFT SHIFT
S114
S115
MSB "1" DETECTED ?
NO
YES
S116
MAX. VALUE IN EACH ~~BLOCK~~ SUB BLOCK OBTAINED ?
NO
YES
DETERMINATION OF BLOCK SIZE
S117
CALCULATE MAX. ABSOLUTE VALUE OF DETERMINED BLOCK
S118
NORMALIZE
~~NORMARIZE~~
S119
S120
ALL WORDS ~~NORMARIZED~~ NORMALIZED ?
NO
YES
S121
PROCESSING FOR ALL WORDS IN ~~LARGE BLOCK~~ FRAME COMPLETED
NO
YES
ORTHOGONAL TRANSFORM
S122
END

FIG. 9

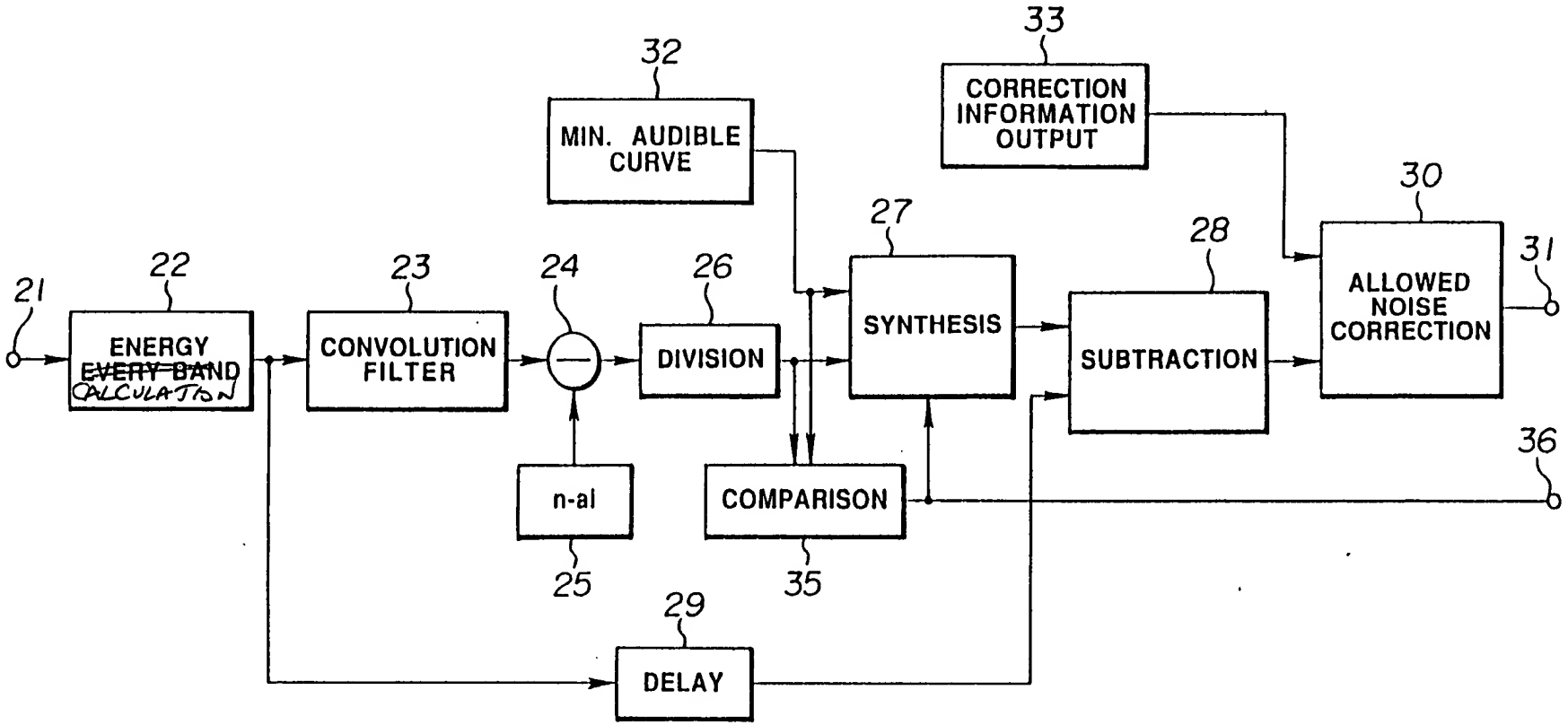

21
22
ENERGY EVERY BAND CALCULATION
23
CONVOLUTION FILTER
24
n-al
25
26
DIVISION
27
SYNTHESIS
28
SUBTRACTION
29
DELAY
30
ALLOWED NOISE CORRECTION
31
32
MIN. AUDIBLE CURVE
33
CORRECTION INFORMATION OUTPUT
35
COMPARISON
36

FIG.10

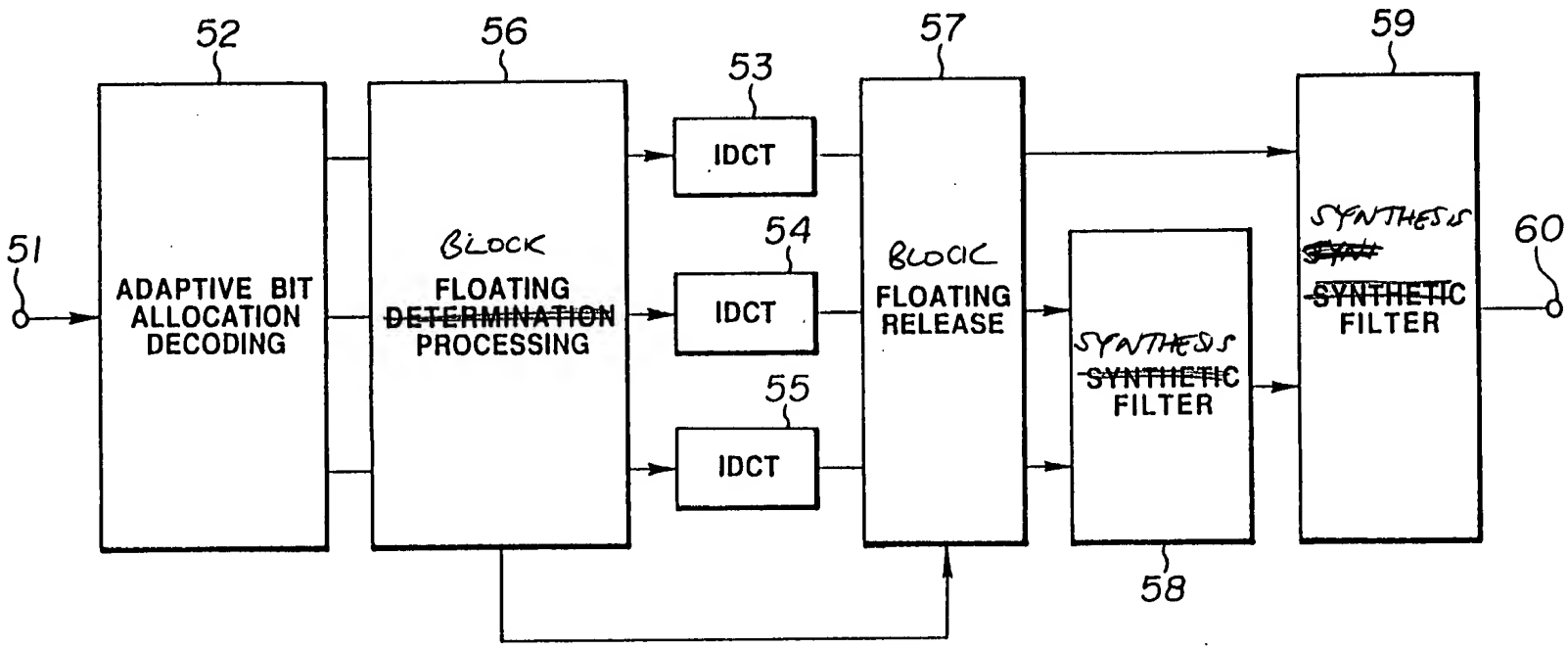

52
56
53
57
59
51
ADAPTIVE BIT ALLOCATION DECODING
BLOCK FLOATING ~~DETERMINATION~~ PROCESSING
IDCT
54
IDCT
55
IDCT
BLOCK FLOATING RELEASE
SYNTHESIS ~~SYNTHETIC~~ FILTER
SYNTHESIS ~~SYNTHETIC~~ FILTER
60
58

FIG.14

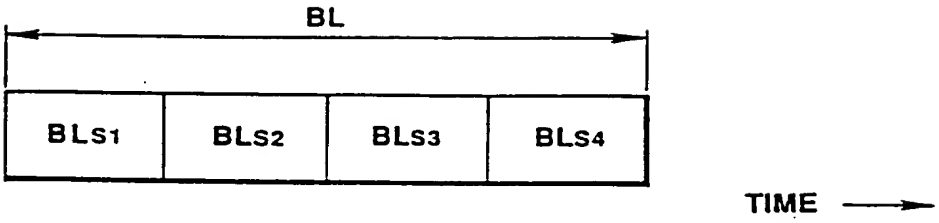

BL
BLS1
BLS2
BLS3
BLS4
TIME

FIG.15

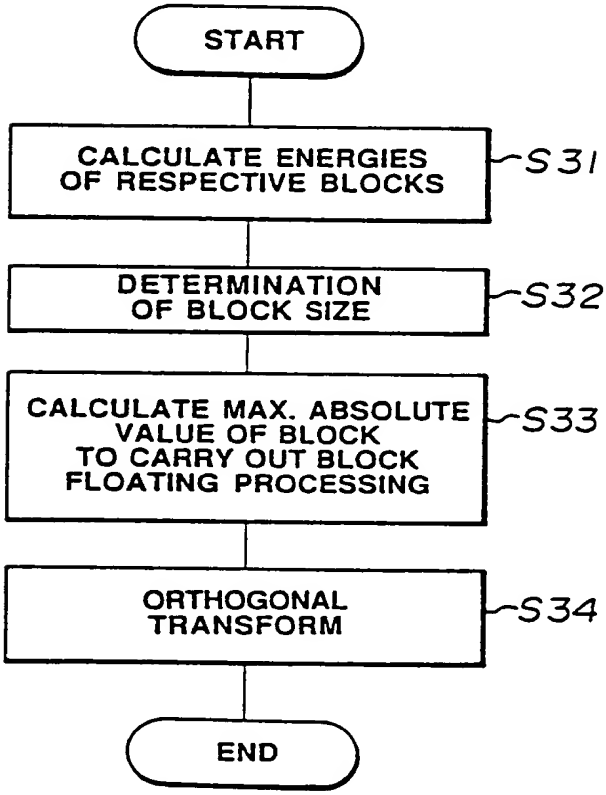

START
CALCULATE ENERGIES OF RESPECTIVE BLOCKS
S31
DETERMINATION OF BLOCK SIZE
S32
CALCULATE MAX. ABSOLUTE VALUE OF BLOCK TO CARRY OUT BLOCK FLOATING PROCESSING
S33
ORTHOGONAL TRANSFORM
S34
END

FIG.16